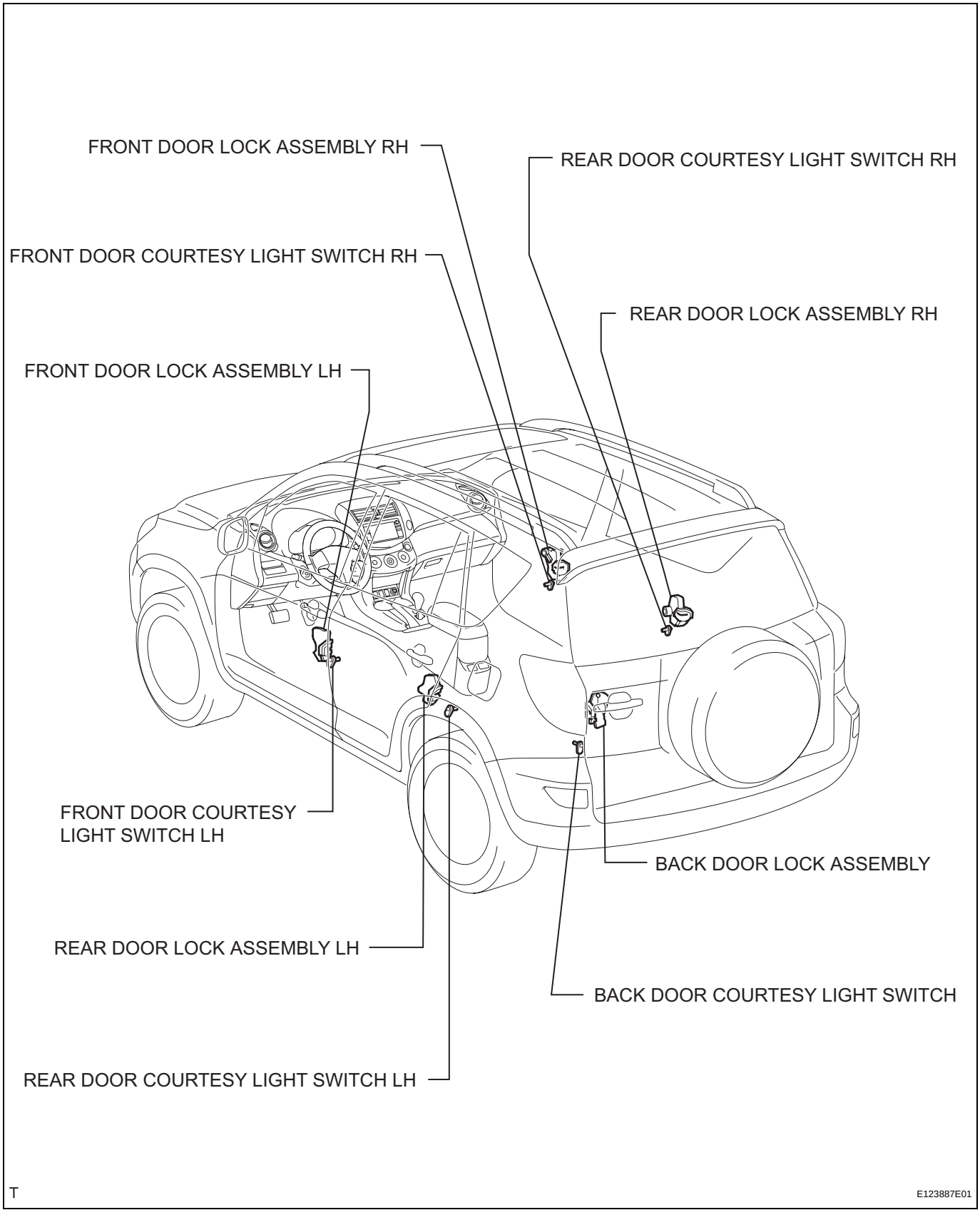
POWER DOOR LOCK CONTROL SYSTEM

PARTS LOCATION



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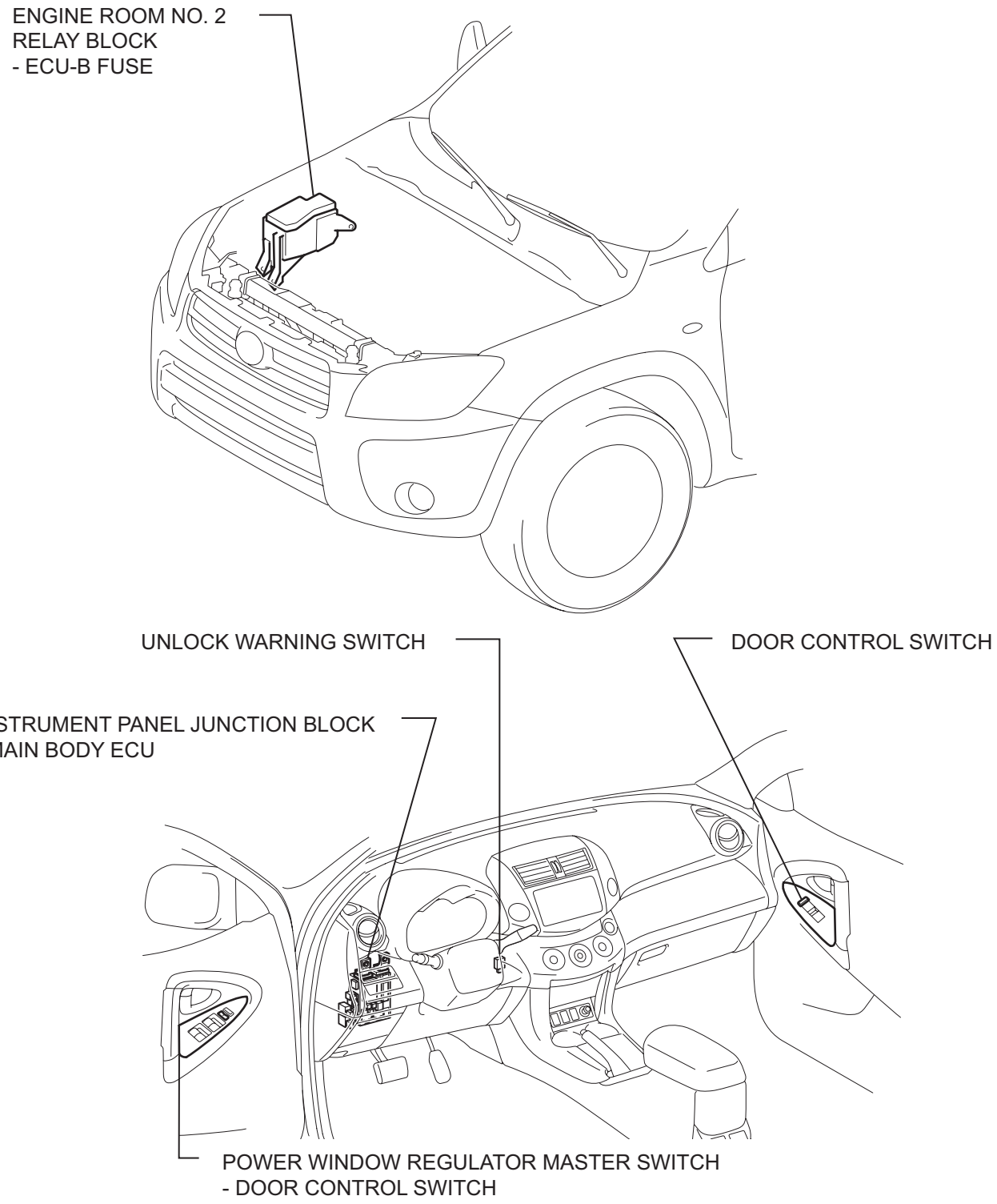

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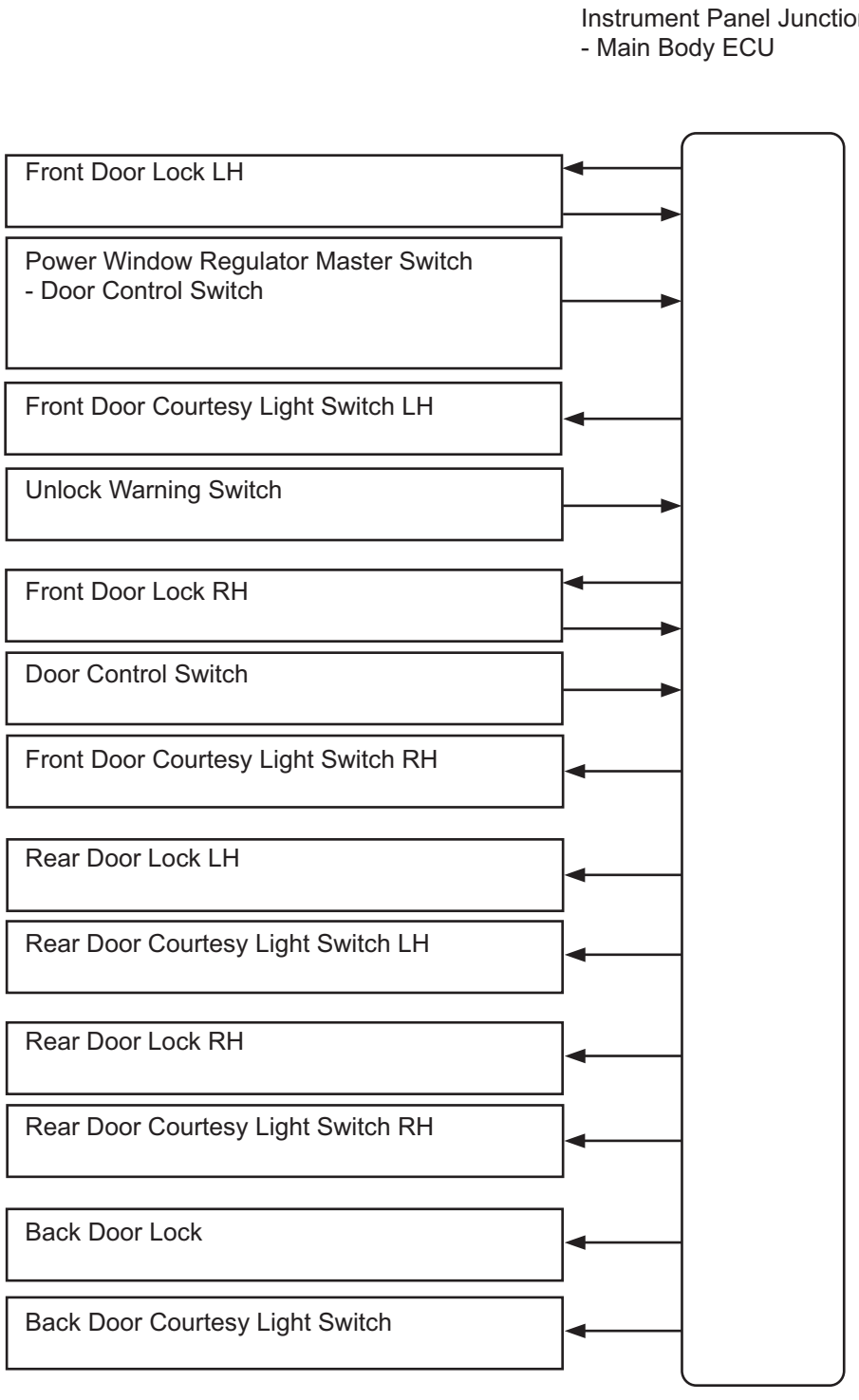
SYSTEM DIAGRAM



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SYSTEM DESCRIPTION

1. POWER DOOR LOCK SYSTEM DESCRIPTION

(a) The power door lock system locks / unlocks all doors with a one-touch operation.

- The door control switch of the power window regulator master switch or door control switch on passenger side sends lock / unlock request signals to the main body ECU. Then, the main body ECU sends these requests to the lock motors in each door to lock / unlock all the doors simultaneously.
- Operating the driver side door lock using a key sends lock / unlock request signals to the main body ECU.

2. COMPONENTS

Components	Function
Door control switch on power window regulator master switch	Locks / unlocks all doors
Door control switch	Locks / unlocks all doors
Door courtesy switch	• Placed on each door. • Detects door status (open or closed) and outputs data to main body ECU. • Turns on when door is open and off when door is closed.
Driver door lock	• Built-in motor locks / unlocks door. • Built-in door control switch (key-linked) detects door key operation's door status (locked or unlocked) and outputs data to main body ECU. • Built-in position switch detects door status (locked or unlocked) and outputs data to main body ECU. This switch turns off when door is locked and on when door is unlocked.
• Front passenger door lock • Rear door lock LH • Rear door lock RH • Back door lock	Built-in motor locks / unlocks door.

3. FUNCTIONS

This system is controlled by the main body ECU. The main body ECU outputs signals to each door lock motor. The door lock control system in the vehicle has the following functions:

Functions	Outlines
Key-linked lock and unlock function	Linked with key cylinder. Locks / unlocks all doors when lock / unlock operation is possible.
Key lock-in prevention function	When key is inserted in ignition key cylinder and door lock operation is performed, all doors are unlocked.
Manual unlock prohibition function	Performing door lock operation with transmitter or key disables unlock operation by door control switch.
2-step unlock function	Unlocks only driver door by turning key cylinder once and unlocks other doors by turning it twice.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the procedure to troubleshoot the power door lock control system.
- *: Use the Intelligent tester.

1 **VEHICLE BROUGHT TO WORKSHOP**

NEXT

2 **INSPECT BATTERY VOLTAGE**

Standard voltage:
11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

3 **PROBLEM SYMPTOMS TABLE**

Result

Result	Proceed to
Fault is not listed in problem symptoms table	A
Fault is listed on problem symptoms table	B

B → **Go to step 5**

A

4 **OVERALL ANALYSIS AND TROUBLESHOOTING***

(a) Operation Check (see page DL-6).
(b) Terminals of ECU (see page DL-8).
(c) DATA LIST / ACTIVE TEST (see page DL-12).

NEXT

5 **ADJUST, REPAIR OR REPLACE**

NEXT

6	**CONFIRMATION TEST**

NEXT

END

OPERATION CHECK

1. CHECK ELECTRICAL DOOR LOCK OPERATION

(a) Check the basic function.

(1) Check that all doors lock when the door control switch (for manual operation) is turned to LOCK and all doors unlock when turned to UNLOCK.

(2) Check that all doors lock when the driver side door lock key cylinder is turned to LOCK using the key.

(3) Check that only the driver side door unlocks when the driver side door lock key cylinder is turned to UNLOCK and all doors unlock when turned to UNLOCK once again within 3 seconds using the key (2-step unlocking function).

(b) Check the key lock-in prevention.

NOTICE:

In order to prevent the key from being actually locked-in, the inspection should be made with the driver side door window open.

(1) Have the key inserted into the ignition key cylinder.

(2) With the driver side door open, check that all doors unlock immediately after the door lock knob for the driver side door is turned to LOCK.

(3) With the driver side door open, check that all doors unlock immediately after the door control switch (for manual operation) is turned to LOCK.

(4) With the driver side door open, turn the driver side door lock knob to LOCK and hold it for 2 seconds or more, and then close the driver side door. Then check that all doors unlock.

CUSTOMIZE PARAMETERS

1. CUSTOMIZING FUNCTION WITH INTELLIGENT TESTER (REFERENCE)

HINT:

The following item can be customized.

NOTICE:

- **When the customer requests a change in a function, first make sure that the function can be customized.**
- **Make a note of the current settings before customizing.**
- **When troubleshooting a function, first make sure that the function is set to the default setting.**

Power door lock control system:

Display (Item)	Default	Function	Setting
UNLK/KEY TWICE	ON	Unlocks only driver side door when driver side door key cylinder turned to unlock once, and unlocks all doors when turned to unlock twice. For OFF setting, turning it once unlocks all doors.	ON/OFF

PROBLEM SYMPTOMS TABLE

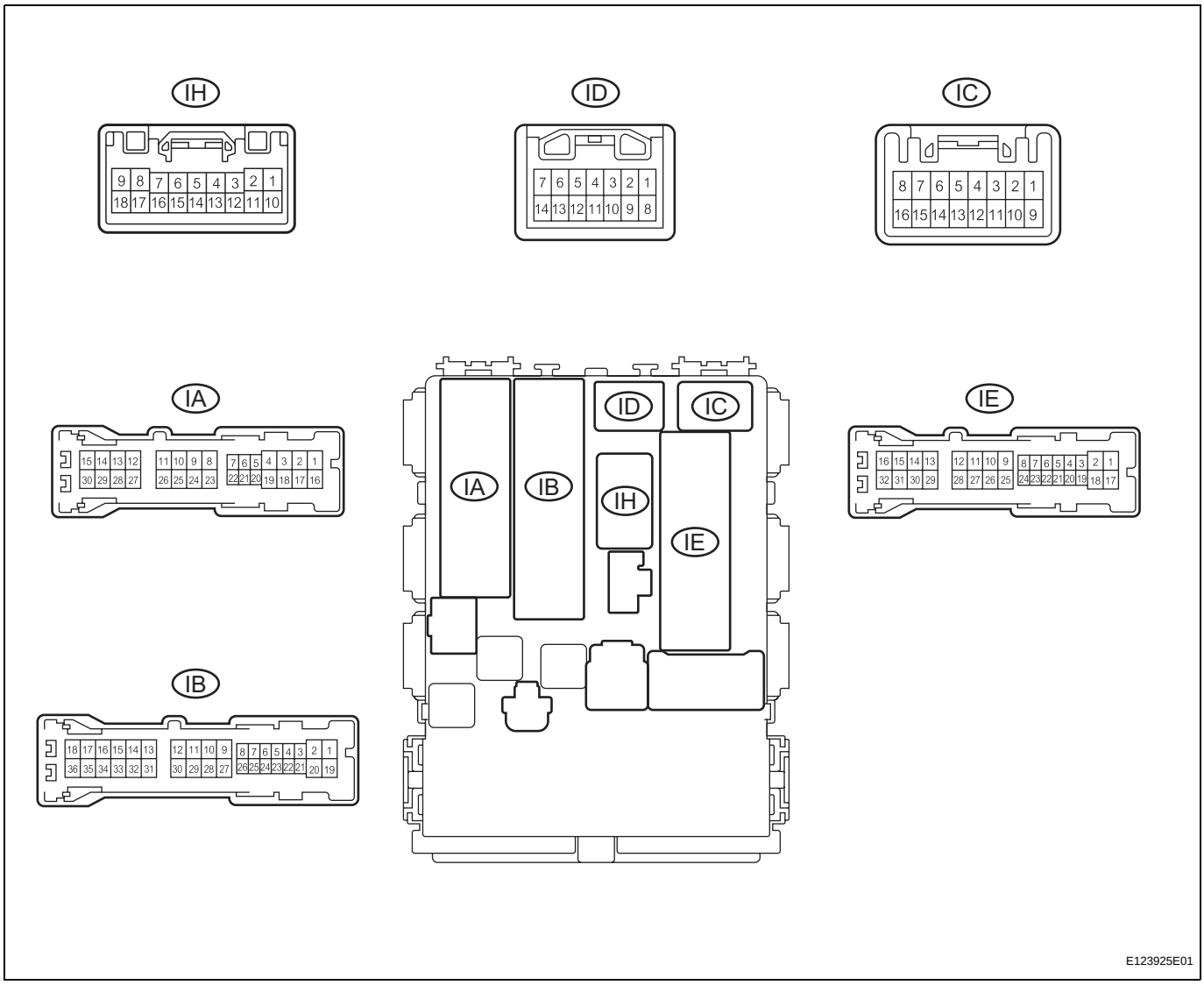
HINT:
Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

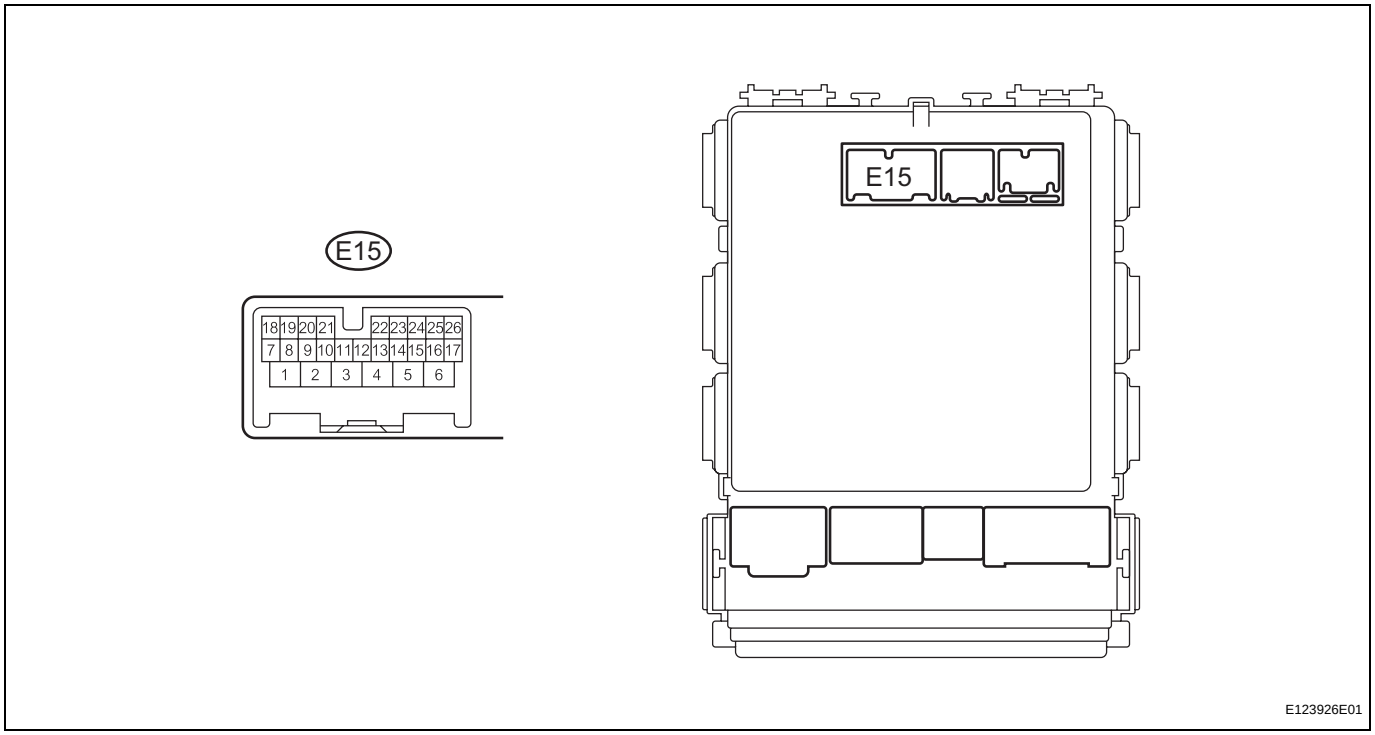
Power door lock control system

Symptom	Suspected area	See page
All Doors cannot be Locked / Unlocked Simultaneously	1. Front door lock LH	DL-14
	2. Door control switch on power window regulator master switch	
	3. Door control switch	
	4. Wire harness	
	5. Main body ECU	
Only Driver Door LOCK / UNLOCK Functions do not Operate	1. Front door lock LH	DL-22
	2. Wire harness	
	3. Main body ECU	
Only Passenger Door LOCK / UNLOCK Functions do not Operate	1. Front door lock RH	DL-25
	2. Wire harness	
	3. Main body ECU	
Only Rear Door LH LOCK / UNLOCK Functions do not Operate	1. Rear door lock LH	DL-28
	2. Wire harness	
	3. Main body ECU	
Only Rear Door RH LOCK / UNLOCK Functions do not Operate	1. Rear door lock RH	DL-30
	2. Wire harness	
	3. Main body ECU	
Only Back Door LOCK / UNLOCK Functions do not Operate	1. Back door lock	DL-32
	2. Wire harness	
	3. Main body ECU	
Key Lock-in Prevention Function does not Work Properly	1. Front door courtesy light switch LH	DL-34
	2. Unlock warning switch	
	3. Wire harness	
	4. Main body ECU	

TERMINALS OF ECU

1. CHECK INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)





(a) Disconnect the IB and IE junction block connectors.
(b) Measure the voltage and resistance of the wire harness side connectors.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
BECU (IB-30) - GND1 (IE-17)	R - W-B	Battery (power supply)	Always	10 to 14 V
GND1 (IE-17) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

(c) Reconnect the IB and IE junction block connector.
(d) Measure the voltage of the wire harness side connectors.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ACT+ (IA-3) - Body ground	R - Body ground	Door lock motor drive lock output	Driver side door control switch or passenger side door control switch or driver side door key cylinder OFF	Below 1 V
ACT+ (IA-3) - Body ground	R - Body ground	Door lock motor drive lock output	Driver side door control switch or passenger side door control switch or driver side door key cylinder ON (LOCK)	10 to 14 V → Below 1 V
ACT+ (IH-8) - Body ground	R - Body ground	Door lock motor drive lock output	Driver side door control switch or passenger side door control switch or driver side door key cylinder OFF	Below 1 V
ACT+ (IH-8) - Body ground	R - Body ground	Door lock motor drive lock output	Driver side door control switch or passenger side door control switch or driver side door key cylinder ON (LOCK)	10 to 14 V → Below 1 V

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ACT+ (IH-17) - Body ground	R - Body ground	Door lock motor drive lock output	Driver side door control switch or passenger side door control switch or driver side door key cylinder OFF	Below 1 V
ACT+ (IH-17) - Body ground	R - Body ground	Door lock motor drive lock output	Driver side door control switch or passenger side door control switch or driver side door key cylinder ON (LOCK)	10 to 14 V → Below 1 V
ACT- (IA-4) - Body ground	BR- Body ground	Door lock motor drive unlock output	Driver side door control switch or passenger side door control switch or driver side door key cylinder OFF	Below 1 V
ACT- (IA-4) - Body ground	BR - Body ground	Door lock motor drive unlock output	Driver side door control switch or passenger side door control switch or driver side door key cylinder ON (UNLOCK)	10 to 14 V → Below 1 V
ACT- (IH-18) - Body ground	B - Body ground	Door lock motor drive unlock output	Driver side door control switch or passenger side door control switch or driver side door key cylinder OFF	Below 1 V
ACT- (IH-18) - Body ground	B - Body ground	Door lock motor drive unlock output	Driver side door control switch or passenger side door control switch or driver side door key cylinder ON (UNLOCK)	10 to 14 V → Below 1 V
KSW (IE-26) - Body ground	L- Body ground	Key unlock warning switch input	Key is inserted in ignition key cylinder	Below 1 V
KSW (IE-26) - Body ground	L- Body ground	Key unlock warning switch input	No key is in ignition key cylinder	10 to 14 V
UL1 (IH-5) - Body ground	B - Body ground	Driver side manual unlock switch input	Driver side door control switch OFF	Below 1 V
UL1 (IH-5) - Body ground	B - Body ground	Driver side manual unlock switch input	Driver side door control switch ON (UNLOCK)	10 to 14 V → Below 1 V
UL1 (IH-14) - Body ground	O - Body ground	Passenger side manual unlock switch input	Passenger side door control switch OFF	Below 1 V
UL1 (IH-14) - Body ground	O - Body ground	Passenger side manual unlock switch input	Passenger side door control switch ON (UNLOCK)	10 to 14 V → Below 1 V
L1 (IH-4) - Body ground	P - Body ground	Driver side manual lock switch input	Driver side door control switch OFF	Below 1 V
L1 (IH-4) - Body ground	P - Body ground	Driver side manual lock switch input	Driver side door control switch ON (LOCK)	10 to 14 V → Below 1 V
L1 (IH-13) - Body ground	V - Body ground	Passenger side manual lock switch input	Passenger side door control switch OFF	Below 1 V
L1 (IH-13) - Body ground	V - Body ground	Passenger side manual lock switch input	Passenger side door control switch ON (LOCK)	10 to 14 V → Below 1 V
L2 (IH-7) - Body ground	SB - Body ground	Driver side Key-linked operated lock switch input	Driver side door key cylinder OFF	Below 1 V
L2 (IH-7) - Body ground	SB - Body ground	Driver side Key-linked operated lock switch input	Driver side door key cylinder ON (LOCK)	10 to 14 V → Below 1 V
PCTY (IC-14) - Body ground	BR - Body ground	Passenger door courtesy switch input	Passenger side door closed	10 to 14 V
PCTY (IC-14) - Body ground	BR - Body ground	Passenger door courtesy switch input	Passenger side door open	Below 1 V
RRCY (ID-7) - Body ground	LC - Body ground	Rear door courtesy switch LH input	Rear RH door closed	10 to 14 V

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
RRCY (ID-7) - Body ground	LC - Body ground	Rear door courtesy switch LH input	Rear RH door open	Below 1 V
BCTY (IA-7) - Body ground	LG - Body ground	Back door courtesy switch input	Back door closed	10 to 14 V
BCTY (IA-7) - Body ground	LG - Body ground	Back door courtesy switch input	Back door open	Below 1 V
DCTY (IA-21) - Body ground	W - Body ground	Driver side door courtesy switch input	Driver side door open	10 to 14 V
DCTY (IA-21) - Body ground	W - Body ground	Driver side door courtesy switch input	Driver side door closed	Below 1 V
DCTY (IC-6) - Body ground	BR - Body ground	Driver side door courtesy switch input	Driver side door open	10 to 14 V
DCTY (IC-6) - Body ground	BR - Body ground	Driver side door courtesy switch input	Driver side door closed	Below 1 V
ACTD (E15-5) - Body ground	B - Body ground	Driver side door unlock motor drive	Driver side door control switch or door control switch or driver side door key cylinder OFF	Below 1 V
ACTD (E15-5) - Body ground	B - Body ground	Driver side door unlock motor drive	Driver side door control switch or door control switch or driver side door key cylinder ON (UNLOCK)	10 to 14 V → Below 1 V
LSWP (E15-10) - Body ground	Y - Body ground	Passenger side door lock position switch input	Passenger side door UNLOCK	10 to 14 V
LSWP (E15-10) - Body ground	Y - Body ground	Passenger side door lock position switch input	Passenger side door LOCK	Below 1 V
UL3 (E15-9) - Body ground	LG - Body ground	Driver side door key-linked operated door unlock switch input	Driver side door key cylinder OFF	Below 1 V
UL3 (E15-9) - Body ground	LG - Body ground	Driver side door key-linked operated door unlock switch input	Driver side door key cylinder ON (LOCK)	10 to 14 V → Below 1 V

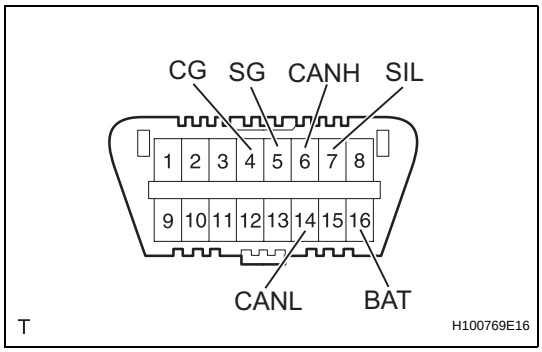
DIAGNOSIS SYSTEM

1. DESCRIPTION

Power door lock control system data can be read in the Data Link Connector 3 (DLC3) of the vehicle. When the system seems to be malfunctioning, use the intelligent tester to check for malfunctions and perform repairs.

2. CHECK DLC3

(a) The ECU uses ISO 15765-4 for communication. The terminal arrangement of the DLC3 complies with ISO 15031-3 and matches the ISO 15765-4 format.



Symbols (Terminal No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus '+' line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
SG (5) - Body ground	Signal ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	10 to 14 V
CANH (6) - CANL (14)	HIGH-level CAN bus line	Ignition switch OFF*	54 to 69 Ω
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch OFF*	1 kΩ or more
CANL (14) - CG (4)	HIGH-level CAN bus line	Ignition switch OFF*	1 kΩ or more
CANH (6) - BAT (16)	LOW-level CAN bus line	Ignition switch OFF*	1 MΩ or more
CANL (14) - BAT (16)	LOW-level CAN bus line	Ignition switch OFF*	1 MΩ or more

NOTICE:

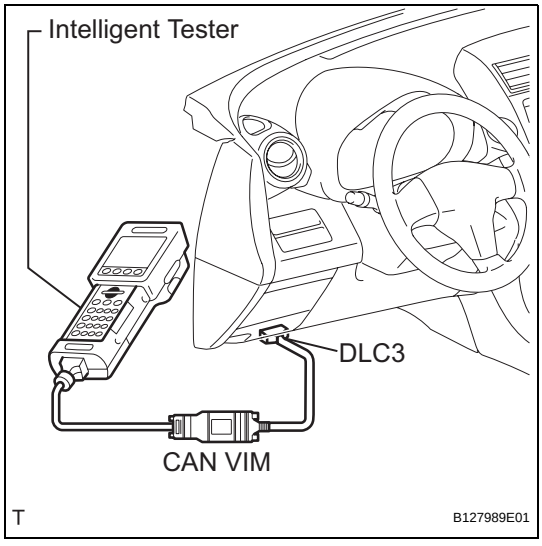
***: Before measuring the resistance, leave the vehicle for at least 1 minute and do not operate the ignition switch, any switches or doors.**

If the result is not as specified, the DLC3 may have a malfunction. Repair or replace the harness and connector.

HINT:

Connect the cable of the intelligent tester to the DLC3, turn the ignition switch ON and attempt to use the tester. If the display indicates that a communication error has occurred, there is a problem either with the vehicle or with the tester.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still not possible when the tester is connected to another vehicle, the problem may be in the tester itself. Consult the Service Department listed in the tester's instruction manual.



DATA LIST / ACTIVE TEST

1. READ DATA LIST

HINT:

Using the intelligent tester's DATA LIST allows switch, sensor, actuator and other item values to be read without removing any parts. Reading the DATA LIST early in troubleshooting is one way to save time.

(a) Connect the intelligent tester (with CAN VIM) to the DLC3.

(b) Turn the ignition switch ON.

(c) Read the DATA LIST on the tester's screen.

Main body ECU

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
D DOR CTY SW	Driver side door courtesy light switch signal / ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-
D LOCK POS SW	Driver side door lock position switch signal / ON or OFF	ON: Driver side door is unlocked OFF: Driver side door is locked	-
D/L SW-LOCK	Door manual lock switch signal ON or OFF	ON: Door control switch on power window regulator master switch is pushed to lock position OFF: Door control switch on power window regulator master switch is not pushed	-
D/L SW UNLOCK	Door manual unlock switch signal / ON or OFF	ON: Door control switch on power window regulator master switch is pushed to unlock position OFF: Door control switch on power window regulator master switch is not pushed	-
DOR KEY SW-LOCK	Door key linked lock switch signal / ON or OFF	ON: Driver side door key cylinder is turned to lock position OFF: Driver side door key cylinder is not turned	-
D DOR KEY SW-UL	Door key linked lock switch signal / ON or OFF	ON: Driver side door key cylinder is turned to unlock position OFF: Driver side door key cylinder is not turned	-
P DOR CTY SW	Passenger side door courtesy light signal / ON or OFF	ON: Passenger side door is open OFF: Passenger side door is closed	-
P LOCK POS SW	Passenger side door lock position switch signal / ON or OFF	ON: Passenger side door is unlocked OFF: Passenger side door is locked	-
RR DOR CTY SW	Rear door RH courtesy light switch signal / ON or OFF	ON: Rear door RH is open OFF: Rear door RH is closed	-
RL DOR CTY SW	Rear door LH courtesy light switch signal / ON or OFF	ON: Rear door LH is open OFF: Rear door LH is closed	-
BK DOR CTY SW	Back door courtesy light switch signal / ON or OFF	ON: Back door is open OFF: Back door is closed	-
KEY UNLK WRN SW	Unlock warning switch signal / ON or OFF	ON: Key is in ignition key cylinder OFF: No key is in ignition key cylinder	-

2. PERFORM ACTIVE TEST

HINT:

Performing the intelligent tester's ACTIVE TEST allows relay, VSV, actuator and other items to be operated without removing any parts. Performing the ACTIVE TEST early in troubleshooting is one way to save time. The DATA LIST can be displayed during the ACTIVE TEST.

(a) Connect the intelligent tester (with CAN VIM) to the DLC3.
(b) Turn the ignition switch ON.
(c) Perform the ACTIVE TEST according to the display on the tester.

Main body ECU

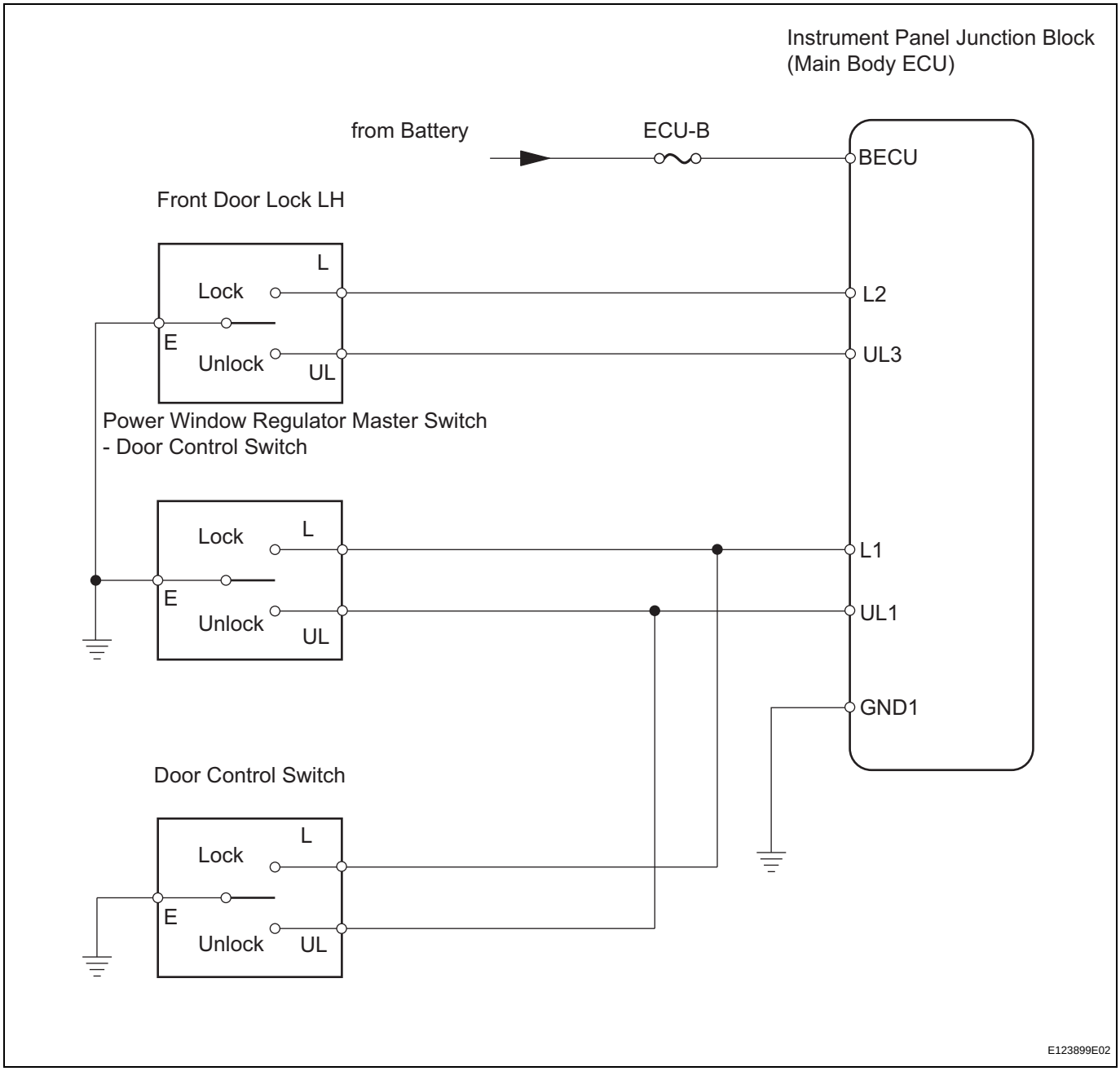
Item	Test Details	Diagnostic Note
DOOR LOCK	Operate door lock motor LOCK/UNLOCK	-
D DOOR UNLOCK	Operate driver side door unlock ON / OFF	-

All Doors cannot be Locked / Unlocked Simultaneously

DESCRIPTION

The main body ECU receives switch signals from the door control switch on the power window regulator master switch, door control switch and driver side door key cylinder, and activates the door lock motor on each door accordingly.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	PERFORM ACTIVE TEST BY INTELLIGENT TESTER (DOOR LOCK)

(a) Select the ACTIVE TEST, use the intelligent tester to generate a control command, and then check that the doors lock / unlock.

Main body ECU

Item	Test Details	Diagnostic Note
DOOR LOCK	Operate door lock motor LOCK / UNLOCK	-

OK:
Doors can lock / unlock.

OK → **Go to step 4**

NG

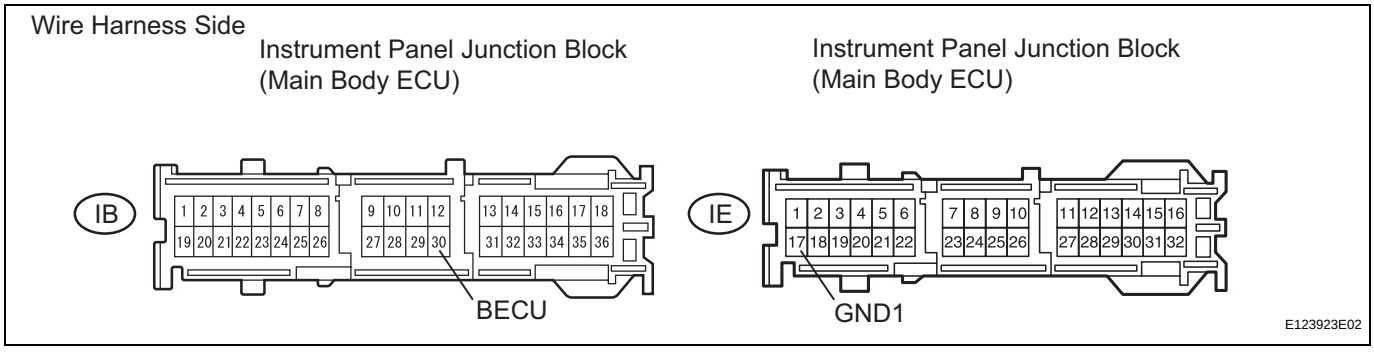
2	INSPECT FUSE (ECU-B)

(a) Remove the ECU-B fuse from the engine room No. 2 relay block.
(b) Measure the resistance.
Standard resistance:
Below 1 Ω

NG → **REPLACE FUSE**

OK

3	CHECK WIRE HARNESS (ECU - BATTERY AND BODY GROUND)



(a) Disconnect the IH and IE junction block connectors.
(b) Measure the voltage of the wire harness side connector.
Standard voltage

Tester Connection	Specified Condition
IB-30 (BECU) - Body ground	10 to 14 V

(c) Measure the resistance of the wire harness side connector.

DL

Standard resistance

Tester Connection	Specified Condition
IE-17 (GND1) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

4 INSPECT ALL DOORS LOCK / UNLOCK OPERATION

(a) All doors can be locked/unlocked at once using the following:
- Door control switch on the master switch (switch operation)
- Door control switch on the front passenger side (switch operation).
- Door key cylinder linked with door lock on the driver side (key operation)

(b) Proceed to the next step according to the symptom if all the doors cannot be locked / unlocked at once.

Symptom	Proceed to
All doors cannot be locked / unlocked at once using door control switch on master switch or door key cylinder on driver side	A
All doors cannot be locked / unlocked at once using door control switch on front passenger side	B

B → **Go to step 12**

A

5 INSPECT DRIVER SIDE DOOR LOCK / UNLOCK OPERATION

(a) Proceed to the next step according to the symptom listed in the table below.

Symptom	Proceed to
All doors cannot be locked / unlocked at once using door control switch on power window regulator master switch	A
All doors cannot be locked / unlocked at once using door key cylinder on driver side	B
All doors cannot be locked / unlocked at once using both door control switch on master switch and door key cylinder on driver side	C

B → **Go to step 9**

C → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)**

A

6	READ VALUE OF INTELLIGENT TESTER (DOOR CONTROL SWITCH ON MASTER SWITCH)

(a) Use the DATA LIST to check if the door control switch is functioning properly.

Main body ECU

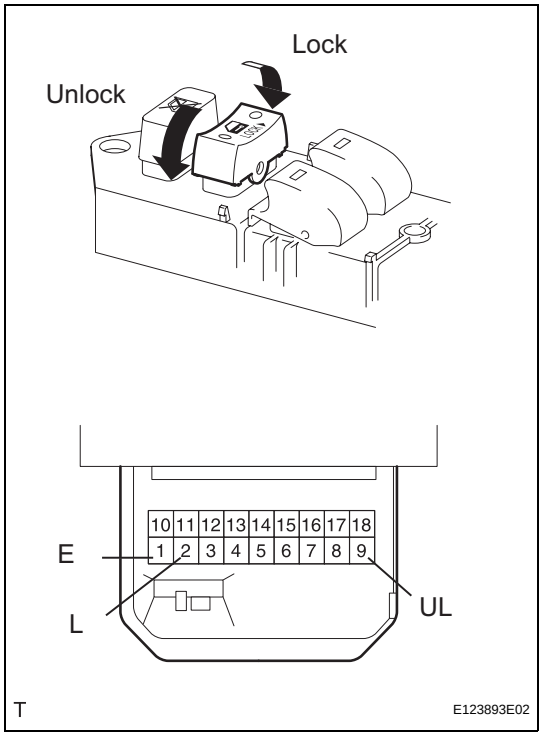
Item	Measurement / Display (Range)	Normal Condition	Diagnostic Note
D/L SW-LOCK	Door manual lock switch signal / ON or OFF	ON: Door control switch on power window regulator master switch is pushed to lock position OFF: Door control switch on power window regulator master switch is not pushed	-
D/L SW-UNLOCK	Door manual unlock switch signal / ON or OFF	ON: Door control switch on power window regulator master switch is pushed to unlock position OFF: Door control switch on power window regulator master switch is not pushed	-

OK:
When the switch is operating, the intelligent tester should display as shown in the table.

OK → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)**

NG

7	INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (DOOR CONTROL SWITCH)



(a) Remove the master switch.
(b) Measure the resistance of the door control switch.
Standard resistance

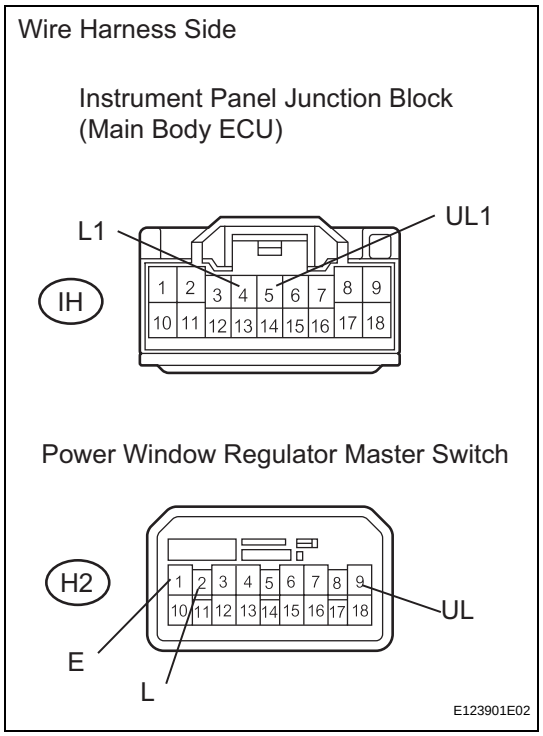
Tester Connection	Switch Condition	Specified Condition
2 (L) - 1 (E)	Lock	Below 80 Ω
2 (L) - 1 (E)	OFF	10 kΩ or higher
9 (UL) -1 (E)	Unlock	Below 80 Ω
9 (UL) - 1 (E)	OFF	10 kΩ or higher

NG → **REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY**

DL

OK

8 CHECK WIRE HARNESS (MASTER SWITCH - ECU AND BODY GROUND)



(a) Disconnect the H2 master switch connector.
(b) Disconnect the IH junction block connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
H2-2 (L) - IH-4 (L1)	Below 1 Ω
H2-2 (L) - Body ground	10 kΩ or higher
IH-4 (L1) - Body ground	10 kΩ or higher
H2-9 (UL) -IH-5 (UL1)	Below 1 Ω
H2-9 (UL) - Body ground	10 kΩ or higher
IH-5 (UL1) - Body ground	10 kΩ or higher
H2-1 (E) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

9 READ VALUE OF INTELLIGENT TESTER (DOOR KEY SWITCH)

(a) Use the DATA LIST to check if the door key is functioning properly.

Main body ECU

Item	Measurement / Display (Range)	Normal Condition	Diagnostic Note
DOR KEY SW-LOCK	Door key linked lock switch signal / ON or OFF	ON: Driver side door key cylinder is turned to lock position OFF: Driver side door key cylinder is not turned	-
D DOR KEY SW-UL	Door key linked lock switch signal / ON or OFF	ON: Driver side door key cylinder is turned to unlock position OFF: Driver side door key cylinder is not turned	-

OK:

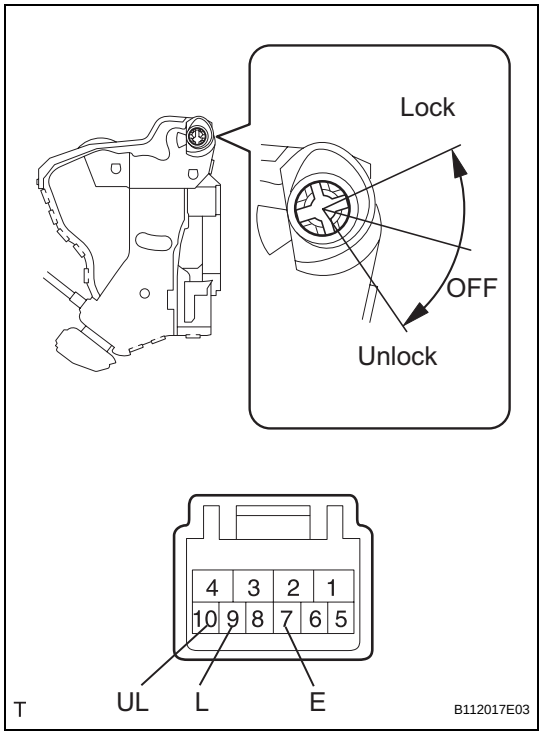
When the door key is operating, the intelligent tester should display as shown in the table.

OK → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)**

DL

NG

10 INSPECT FRONT DOOR WITH MOTOR LOCK ASSEMBLY LH



(a) Remove the front door lock.
(b) Measure the resistance of the door lock and unlock switch.

Standard resistance

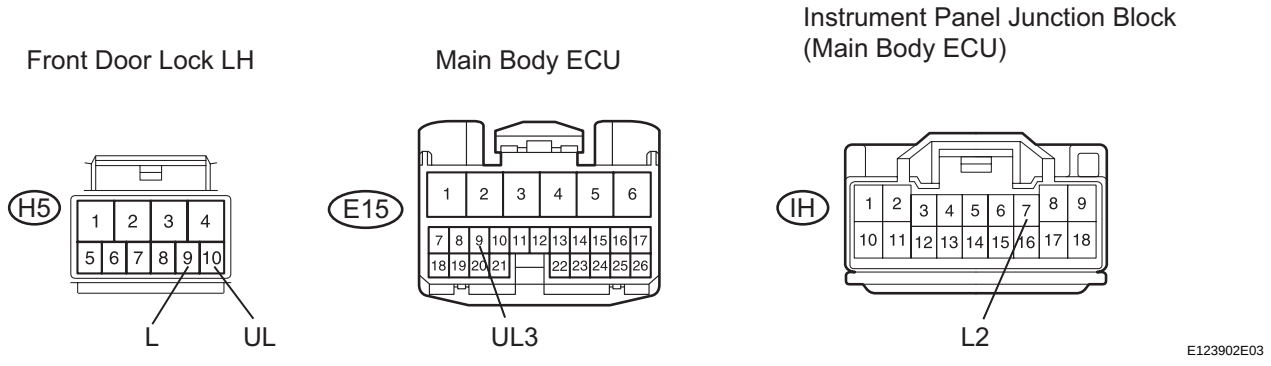
Tester Condition	Switch Condition	Specified Condition
9 (L) -7 (E)	Lock	Below 1 Ω
9 (L) -7 (E)	OFF	10 kΩ or higher
10 (UL) - 7 (E)	Unlock	Below 1 Ω
10 (UL) - 7 (E)	OFF	10 kΩ or higher

NG → **REPLACE FRONT DOOR WITH MOTOR LOCK ASSEMBLY LH**

OK

11 CHECK WIRE HARNESS (MOTOR - ECU AND BODY GROUND)

Wire Harness Side



(a) Disconnect the H5 door lock motor connector.
(b) Disconnect the E15 ECU connector.
(c) Disconnect the IH junction block connector.
(d) Measure the resistance of the wire harness side connectors.

DL

Standard resistance

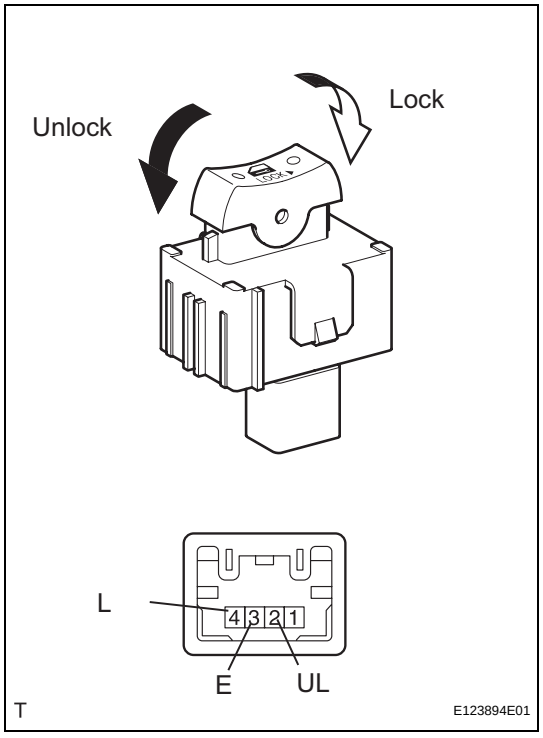
Tester Connection	Specified Condition
H5-9 (L) - IH-7 (L2)	Below 1 Ω
H5-9 (L) - Body ground	10 kΩ or higher
IH-7 (L2) - Body ground	10 kΩ or higher
H5-10 (UL) - E15-9 (UL3)	Below 1 Ω
H5-10 (UL) - Body ground	10 kΩ or higher
E15-9 (UL3) - Body ground	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

12 INSPECT DOOR CONTROL SWITCH ASSEMBLY



(a) Remove the control switch.
(b) Measure the resistance of the door control switch.
Standard resistance

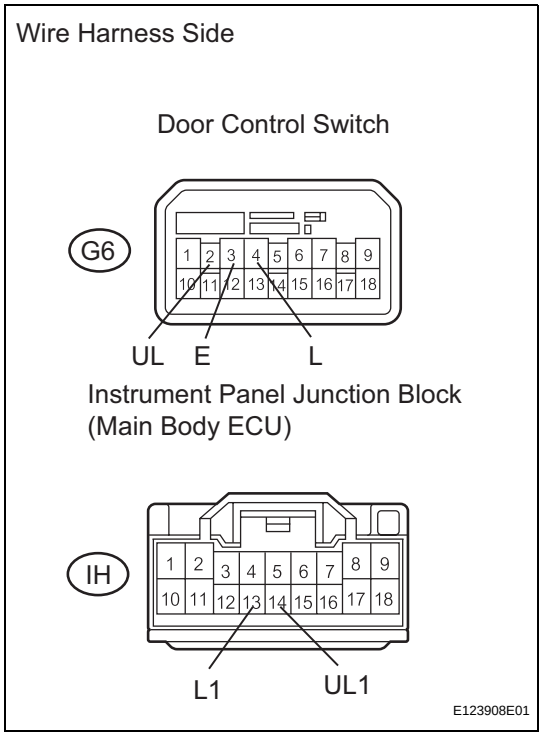
Tester Connection	Switch Condition	Specified Condition
4 (L) - 3 (E)	Lock	Below 200 Ω
4 (L) - 3 (E)	OFF	10 kΩ or higher
2 (UL) - 3 (E)	Unlock	Below 200 Ω
2 (UL) - 3 (E)	OFF	10 kΩ or higher

NG → **REPLACE DOOR CONTROL SWITCH ASSEMBLY**

OK

DL

13	CHECK WIRE HARNESS (SWITCH - ECU AND BODY GROUND)



(a) Disconnect the G6 switch connector.
(b) Disconnect the IH junction block connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
G6-4 (L) - IH-13 (L1)	Below 1 Ω
G6-4 (L) - Body ground	10 kΩ or higher
IH-13 (L1) - Body ground	10 kΩ or higher
G6-2 (UL) -IH-14 (UL1)	Below 1 Ω
G6-2 (UL) - Body ground	10 kΩ or higher
IH-14 (UL1) - Body ground	10 kΩ or higher
G6-3 (E) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

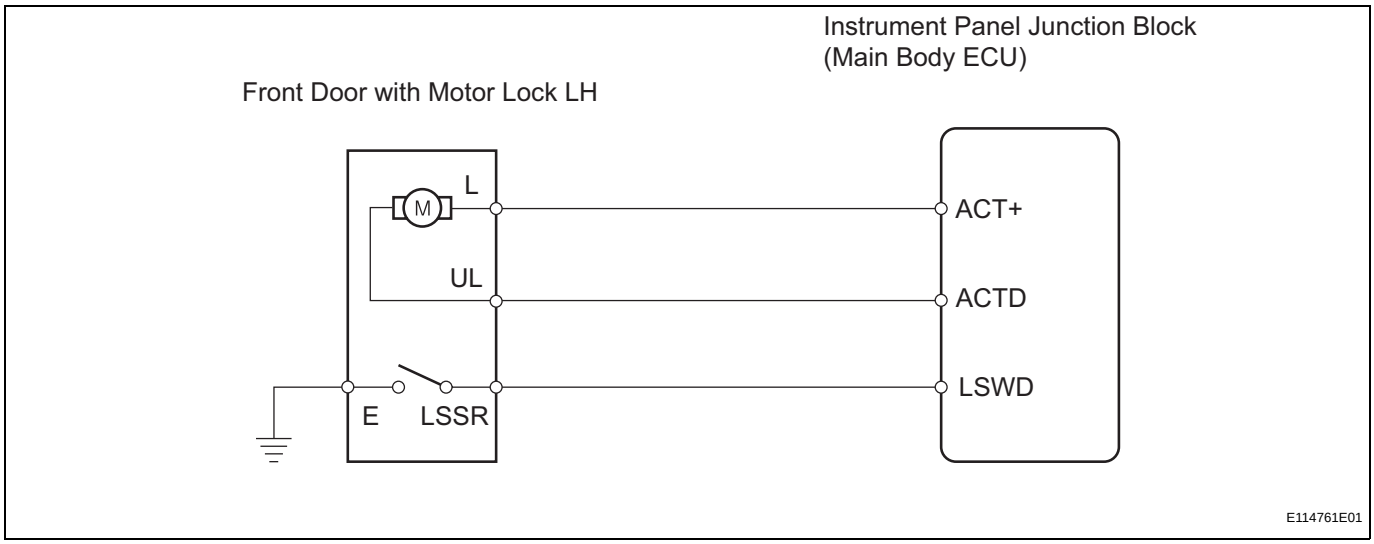
REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

Only Driver Door LOCK / UNLOCK Functions do not Operate

DESCRIPTION

The main body ECU receives lock / unlock switch signals and activates the door lock motor accordingly.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	PERFORM ACTIVE TEST BY INTELLIGENT TESTER (DOOR LOCK)

(a) Select the ACTIVE TEST, use the intelligent tester to generate a control command, and then check that the doors lock / unlock.

Main body ECU

Item	Test Details	Diagnostic Note
D DOOR UNLOCK	Operate driver side door unlock ON / OFF	-

OK:

Doors can lock / unlock.

OK → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)**

NG

2	READ VALUE OF INTELLIGENT TESTER (LOCK POSITION SWITCH)

(a) Use the DATA LIST to check if the door lock is functioning properly.

Main body ECU

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
D LOCK POS SW	Driver side door lock position switch signal ON / OFF	ON: Driver side door is unlocked OFF: Driver side door is locked	-

DL

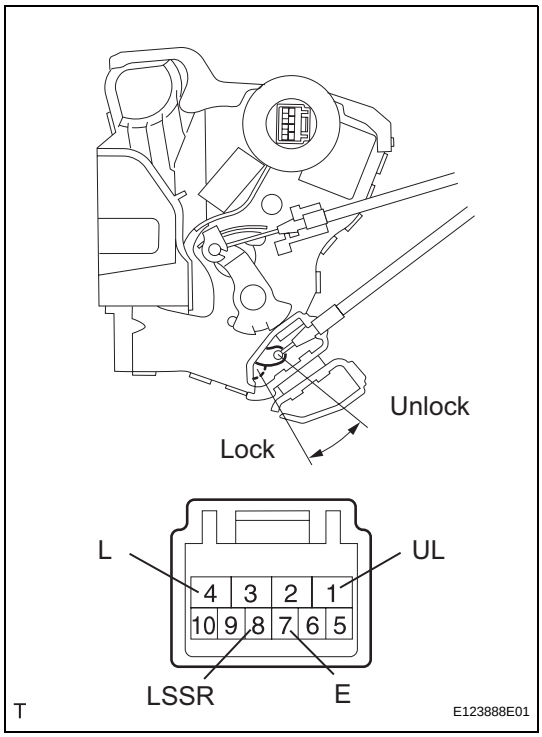
OK:

When the door lock is operating, the intelligent tester should display as shown in the table.

OK → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)**

NG

3 INSPECT FRONT DOOR WITH MOTOR LOCK ASSEMBLY LH



(a) Apply the battery voltage to the motor terminals and check the operation of the door lock motor.

OK

Measurement Condition	Specified Condition
Battery positive (+) → 4 (L) Battery negative (-) → 1 (UL)	Lock
Battery positive (+) → 1 (UL) Battery negative (-) → 4 (L)	Unlock

(b) Measure the resistance of the door lock position switch.

Standard resistance

Tester Connection	Switch Condition	Specified Condition
8 (LSSR) - 7 (E)	Lock	10 kΩ or higher
8 (LSSR) - 7 (E)	Unlock	Below 1 Ω

NG → **REPLACE FRONT DOOR WITH MOTOR LOCK ASSEMBLY LH**

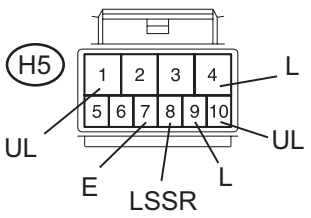
OK

4 CHECK WIRE HARNESS (DOOR LOCK - ECU)

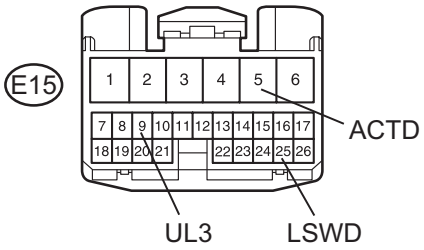
Wire Harness Side

DL

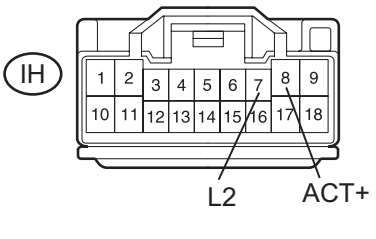
Front Door with Motor Lock LH



Main Body ECU



Instrument Panel Junction Block (Main Body ECU)



E123902E02

(a) Disconnect the H5 door lock connector.
(b) Disconnect the E15 ECU connector.
(c) Disconnect the IH junction block connector.
(d) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
H5-1 (UL) - E15-5 (ACTD)	Below 1 Ω
H5-4 (L) - IH-8 (ACT+)	Below 1 Ω
H5-8 (LSSR) - E15-25 (LSWD)	Below 1 Ω
H5-9 (L) - IH-7 (L2)	Below 1 Ω
H5-10 (UL) - E15-9 (UL3)	Below 1 Ω
H5-7 (E) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

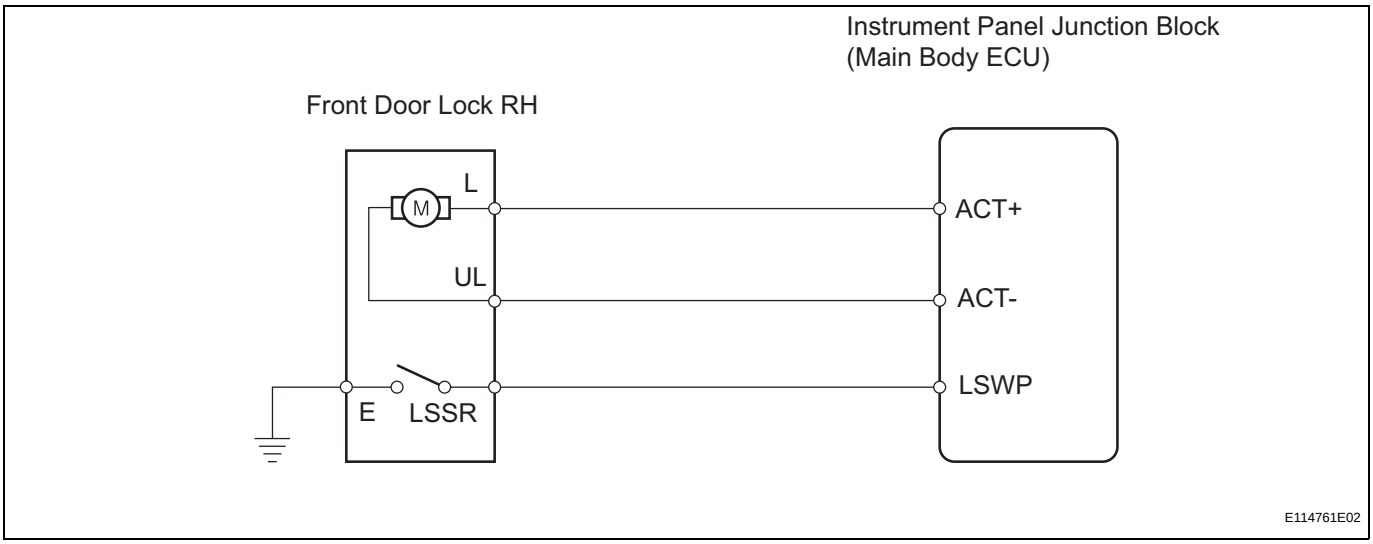
REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

Only Passenger Door LOCK / UNLOCK Functions do not Operate

DESCRIPTION

The main body ECU receives lock / unlock switch signals and activates the door lock motor accordingly.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	READ VALUE OF INTELLIGENT TESTER (LOCK POSITION SWITCH)

(a) Use the DATA LIST to check if the door lock is functioning properly.

Main body ECU

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
P LOCK POS SW	Passenger side door lock position switch signal / ON or OFF	ON: Passenger side door is unlocked OFF: Passenger side door is locked	-

OK:

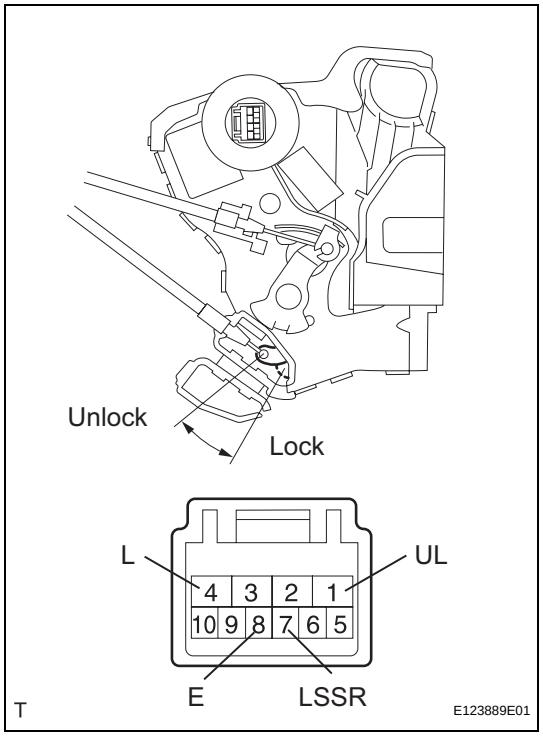
When the door lock is operating, the intelligent tester should display as shown in the table.

OK → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)**

NG

DL

2 INSPECT FRONT DOOR WITH MOTOR LOCK ASSEMBLY RH



(a) Apply the battery voltage to the door lock motor and check the operation of the door lock motor.
OK

Measurement Condition	Specified Condition
Battery positive (+) → 4 (L) Battery negative (-) → 1 (UL)	Lock
Battery positive (+) → 1 (UL) Battery negative (-) → 4 (L)	Unlock

(b) Measure the resistance of the door lock position switch.
Standard resistance

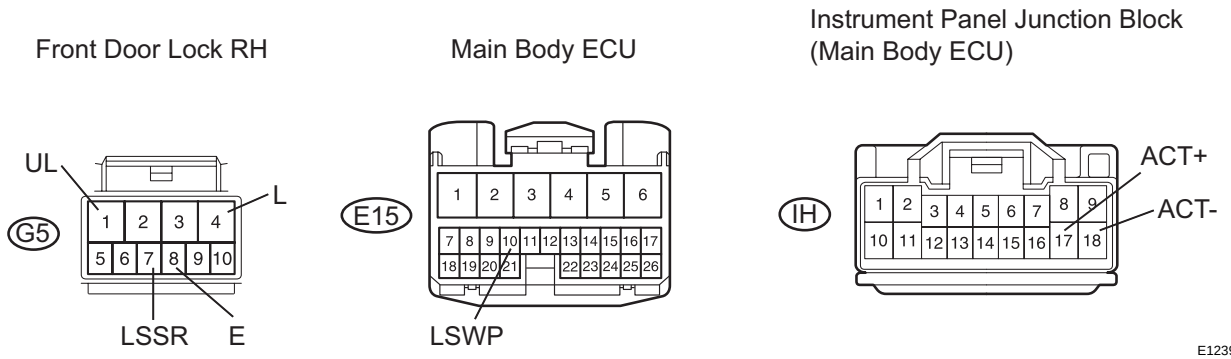
Tester Connection	Switch Condition	Specified Condition
7 (LSSR) - 8 (E)	Lock	10 kΩ or higher
7 (LSSR) - 8 (E)	Unlock	Below 1 Ω

NG → **REPLACE FRONT DOOR WITH MOTOR LOCK ASSEMBLY RH**

OK

3 CHECK WIRE HARNESS (DOOR LOCK - ECU)

Wire Harness Side



(a) Disconnect the G5 door lock connector.
(b) Disconnect the E15 ECU connector.
(c) Disconnect the IH junction block connector.
(d) Measure the resistance of the wire harness side connectors.

DL

Standard resistance

Tester Connection	Specified Condition
G5-1 (UL) - IH-18 (ACT-)	Below 1 Ω
G5-4 (L) - IH-17 (ACT+)	Below 1 Ω
G5-7 (LSSR) - E15-10 (LSWP)	Below 1 Ω
G5-8 (E) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

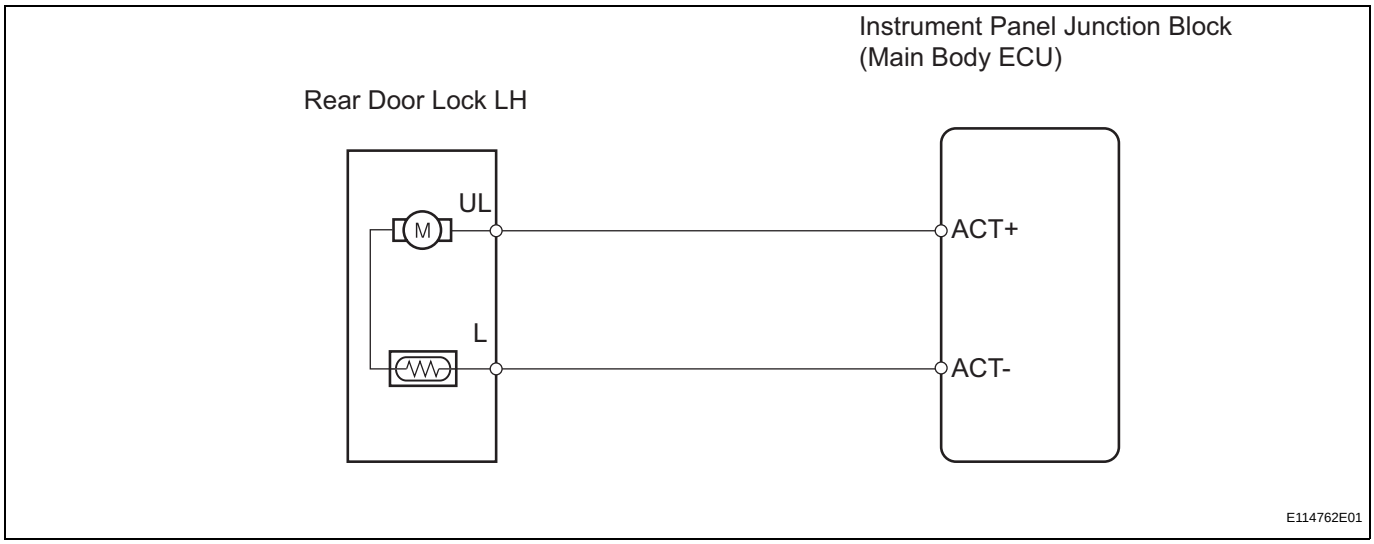
REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

Only Rear Door LH LOCK / UNLOCK Functions do not Operate

DESCRIPTION

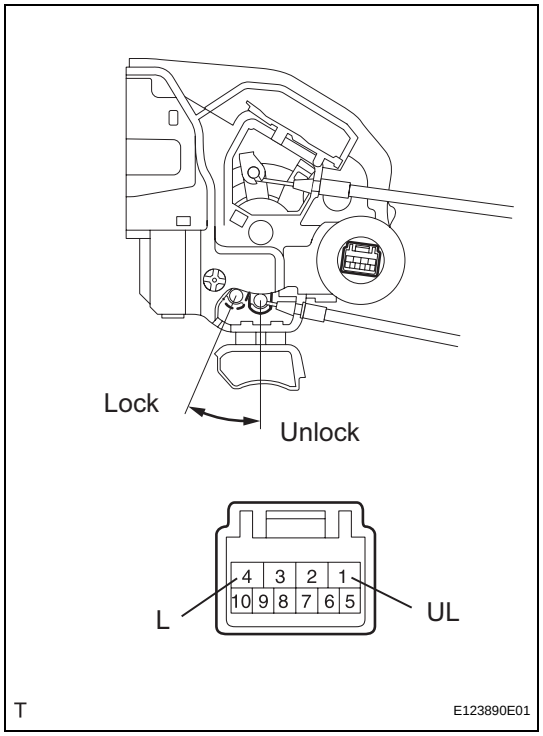
The main body ECU receives lock / unlock switch signals and activates the door lock motor accordingly.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	INSPECT REAR DOOR WITH MOTOR LOCK ASSEMBLY LH



(a) Apply the battery voltage to the door lock motor and check the operation of the door lock motor.
OK

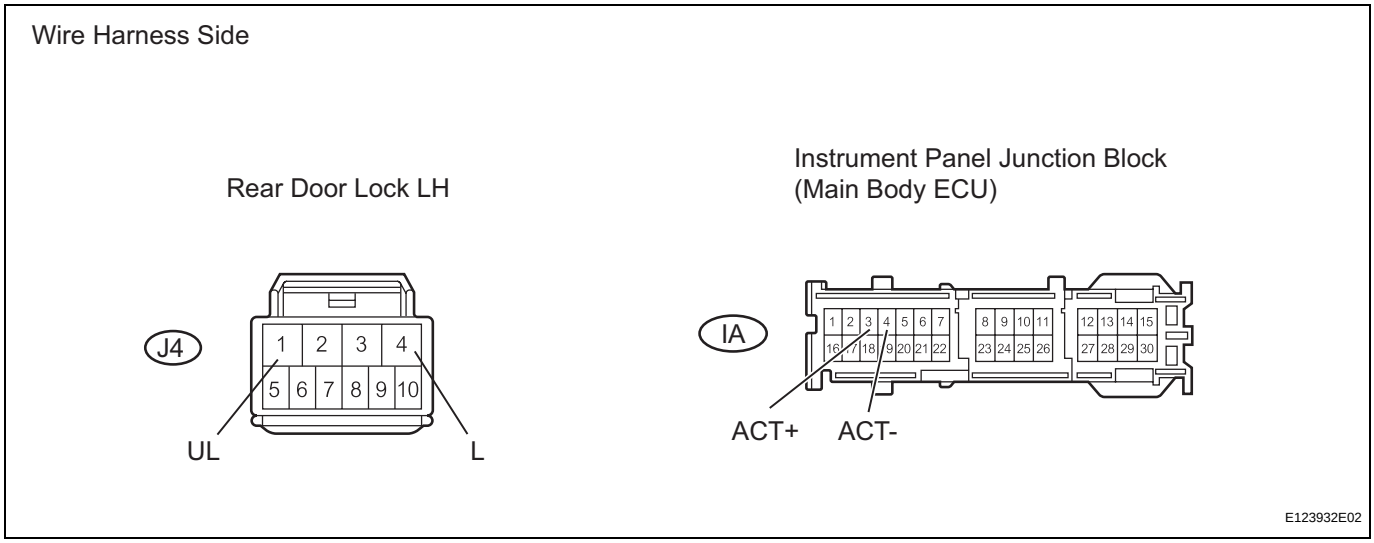
Measurement Condition	Specified Condition
Battery positive (+) → 4 (L) Battery negative (-) → 1 (UL)	Lock
Battery positive (+) → 1 (UL) Battery negative (-) → 4 (L)	Unlock

NG → **REPLACE REAR DOOR WITH MOTOR LOCK ASSEMBLY LH**

OK

DL

2	CHECK WIRE HARNESS (DOOR LOCK - ECU)



(a) Disconnect the J4 door lock connector.
(b) Disconnect the IA junction block connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
J4-1 (UL) - IA-4 (ACT-)	Below 1 Ω
J4-4 (L) - IA-3 (ACT+)	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

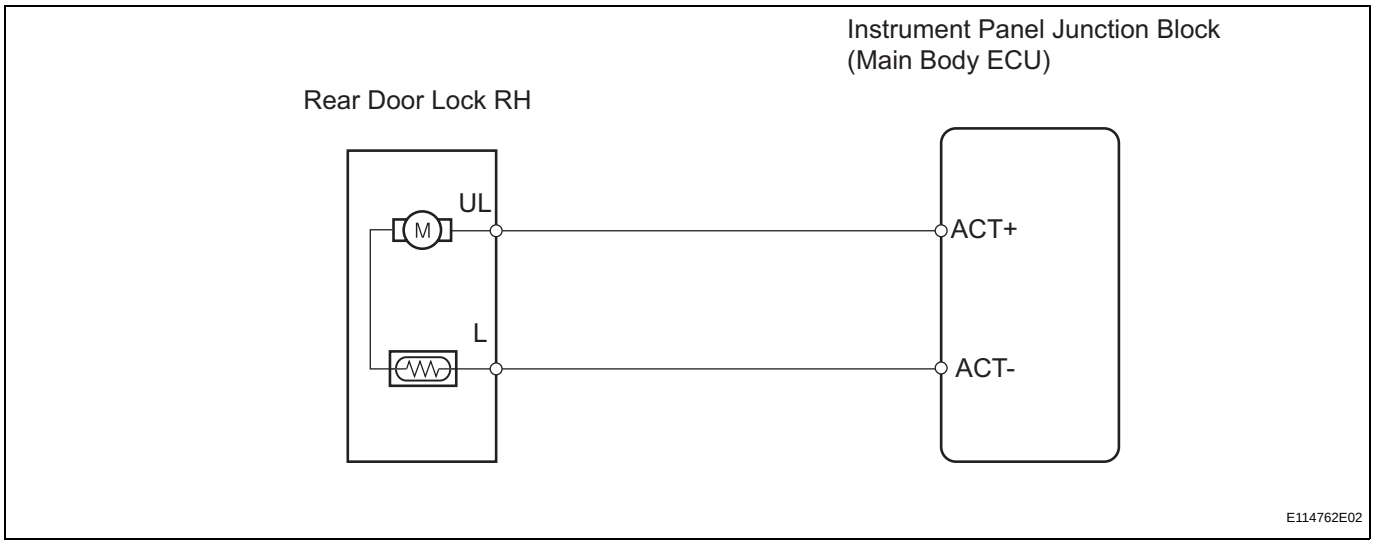
REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

Only Rear Door RH LOCK / UNLOCK Functions do not Operate

DESCRIPTION

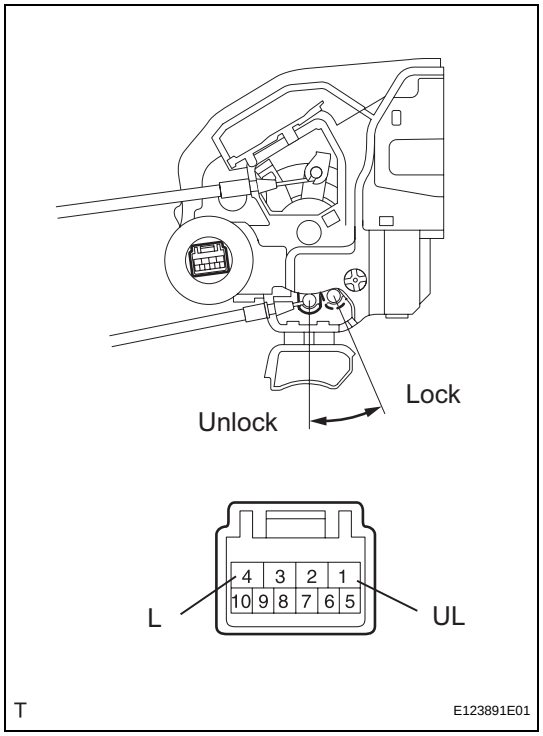
The main body ECU receives lock / unlock switch signals and activates the door lock motor accordingly.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	INSPECT REAR DOOR WITH MOTOR LOCK ASSEMBLY RH



(a) Apply the battery voltage to the door lock motor and check the operation of the door lock motor.
OK

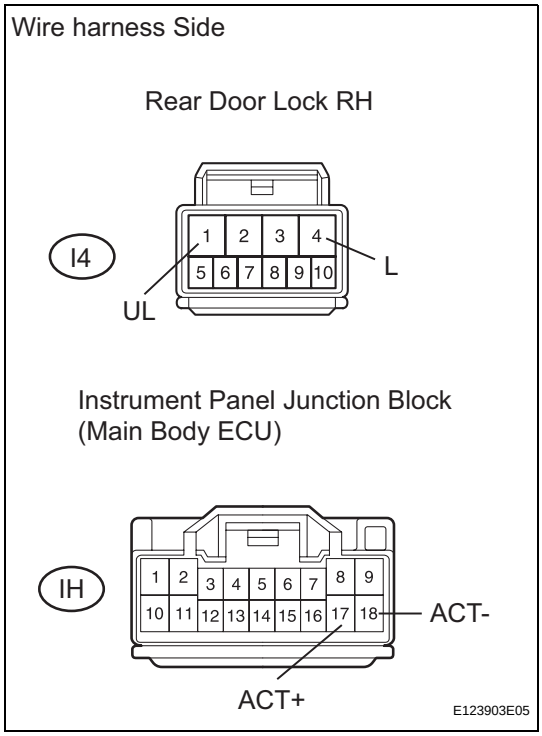
Measurement Condition	Specified Condition
Battery positive (+) → 4 (L) Battery negative (-) → 1 (UL)	**Lock**
Battery positive (+) → 1 (UL) Battery negative (-) → 4 (L)	**Unlock**

NG → **REPLACE REAR DOOR WITH MOTOR LOCK ASSEMBLY RH**

OK

DL

2	CHECK WIRE HARNESS (DOOR LOCK - ECU)



(a) Disconnect the I4 door lock connector.
(b) Disconnect the IH junction block connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
I4-1 (UL) - IH-18 (ACT-)	Below 1 Ω
I4-4 (L) - IH-17 (ACT+)	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR (MAIN BODY ECU)**

OK

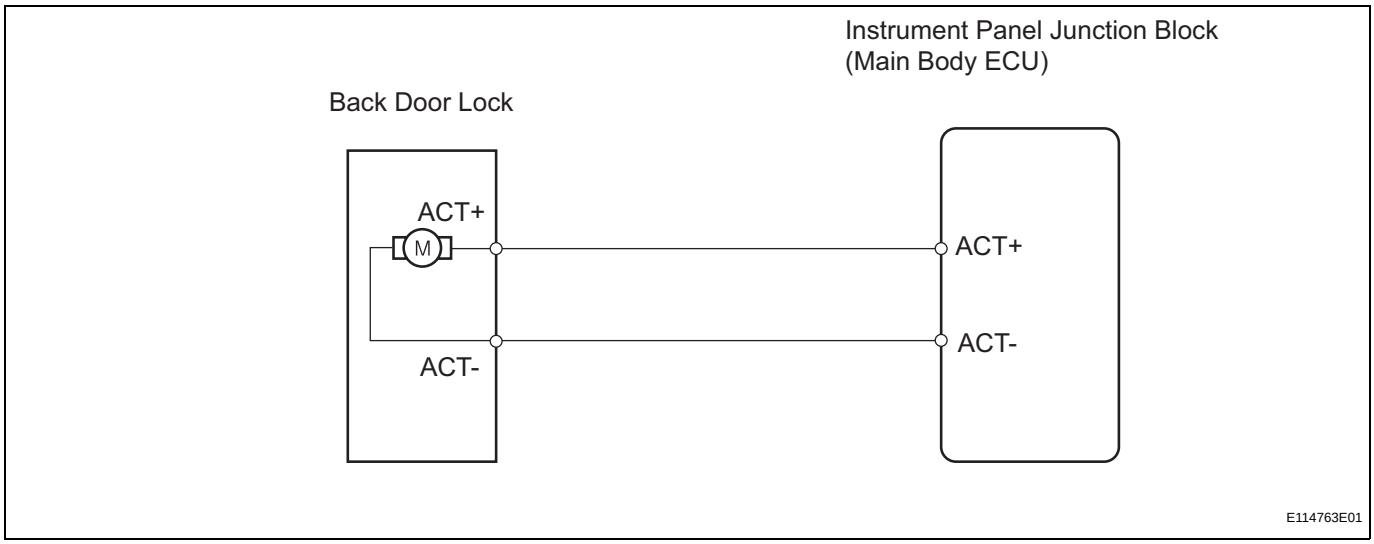
REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

Only Back Door LOCK / UNLOCK Functions do not Operate

DESCRIPTION

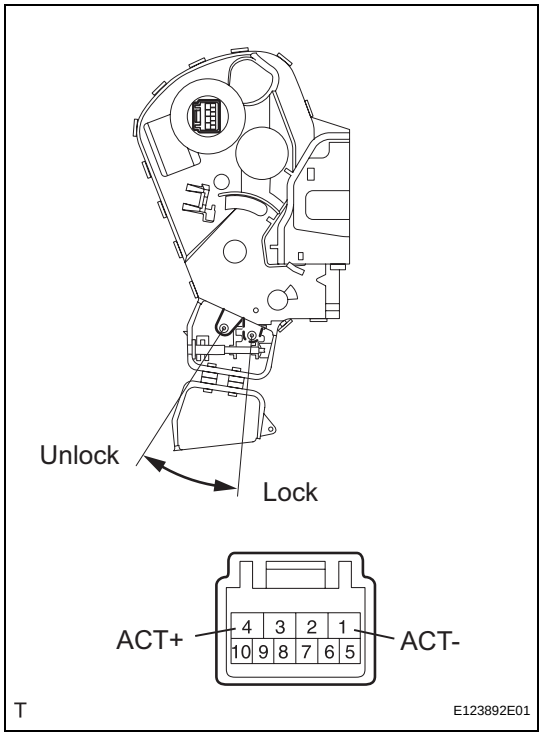
The main body ECU receives lock / unlock switch signals and activates the door lock motor accordingly.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	INSPECT BACK DOOR WITH MOTOR LOCK ASSEMBLY



(a) Apply the battery voltage to the door lock motor and check the operation of the door lock motor.
OK

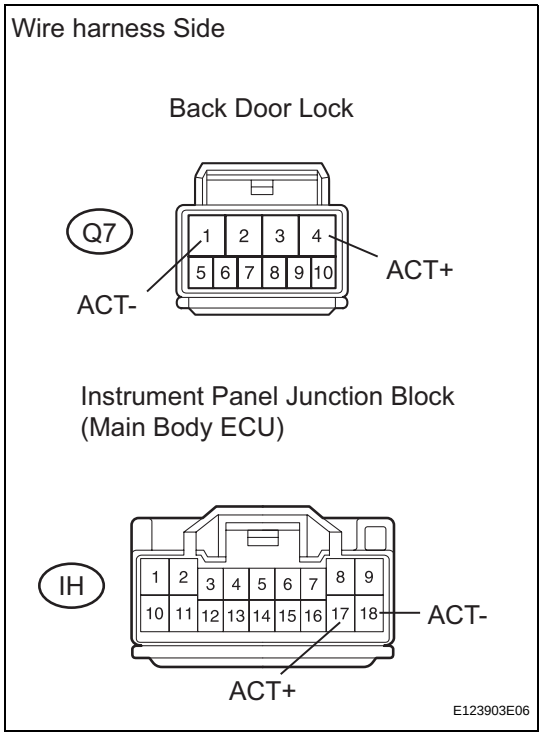
Measurement Condition	Specified Condition
Battery positive (+) → 4 (ACT+) Battery negative (-) → 1 (ACT-)	Lock
Battery positive (+) → 1 (ACT-) Battery negative (-) → 4 (ACT+)	Unlock

NG → **REPLACE BACK DOOR WITH MOTOR LOCK ASSEMBLY**

OK

DL

2	CHECK WIRE HARNESS (DOOR LOCK - ECU)



(a) Disconnect the Q7 door lock connector.
(b) Disconnect the IH junction block connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
Q7-1 (ACT-) - IH-18 (ACT-)	Below 1 Ω
Q7-4 (ACT+) - IH-17 (ACT+)	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

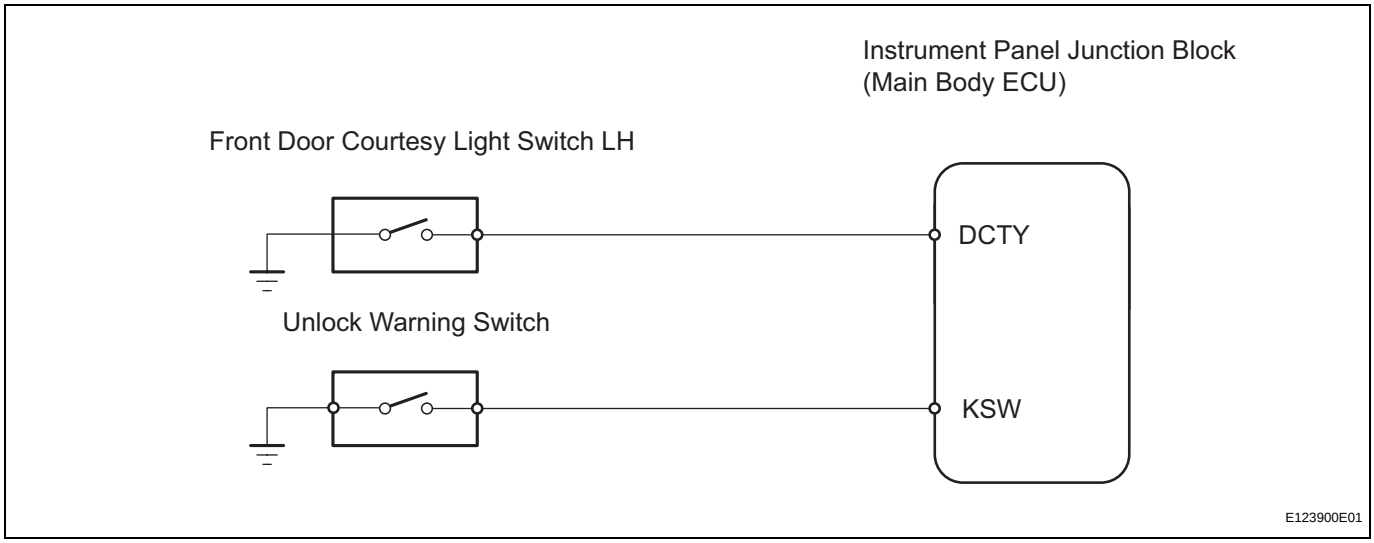
REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

Key Lock-in Prevention Function does not Work Properly

DESCRIPTION

When the key is in the ignition key cylinder or the door courtesy light ON signal is output to the main body ECU, performing the door lock operation with the lock switch does not lock the door.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	READ VALUE OF INTELLIGENT TESTER (UNLOCK WARNING SWITCH)

(a) Use the DATA LIST to check if the unlock warning switch is functioning properly.

Main body ECU

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
KEY UNLK WRN SW	Unlock warning switch signal / ON or OFF	ON: Key is in ignition key cylinder OFF: No key is in ignition key cylinder	-

OK:

When the switch is operating, the intelligent tester should display as shown in the table.

NG → **Go to step 5**

OK

DL

2	READ VALUE OF INTELLIGENT TESTER (DRIVER SIDE DOOR COURTESY LIGHT SWITCH)

(a) Use the DATA LIST to check if the door courtesy light switch is functioning properly.

Main body ECU

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
D DOR CTY SW	Driver side door courtesy light switch signal / ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-

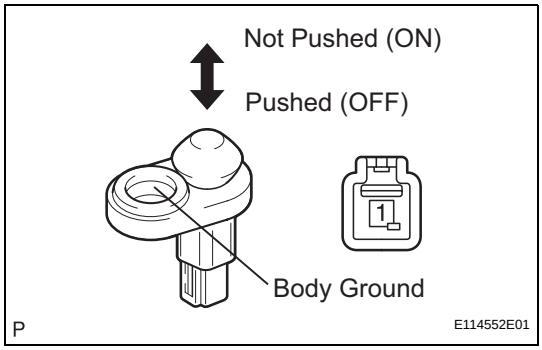
OK:

When the switch is operating, the intelligent tester should display as shown in the table.

OK → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)**

NG

3	INSPECT FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY LH



(a) Remove the front door courtesy light switch.
(b) Measure the resistance of the switch.

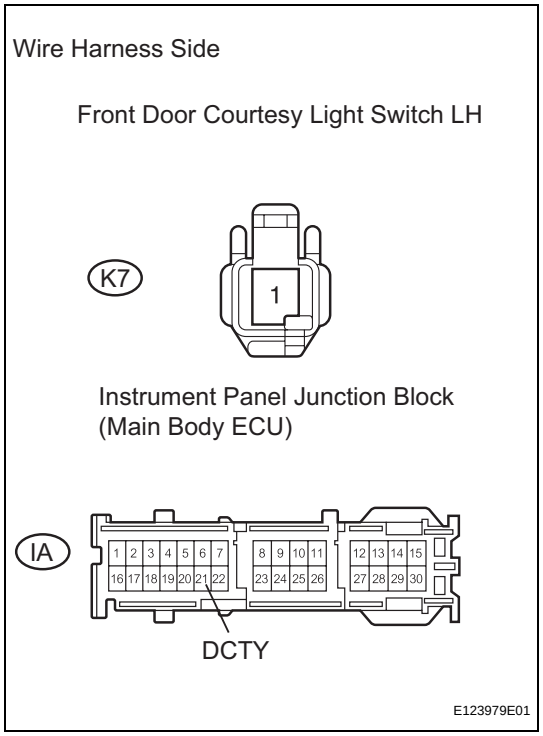
Standard resistance

Tester Connection	Switch Condition	Specified Condition
1 - Body ground	Not pushed (ON)	Below 1 Ω
1 - Body ground	Pushed (OFF)	10 kΩ or higher

NG → **REPLACE FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY LH**

OK

4 CHECK WIRE HARNESS (ECU - SWITCH)



(a) Disconnect the K7 switch connector.
(b) Disconnect the IA junction block connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance

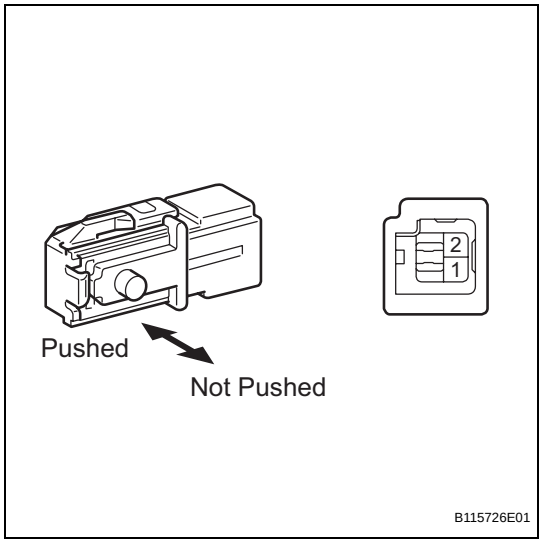
Tester Connection	Specified Condition
K7-1 - IA-21 (DCTY)	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

5 INSPECT UNLOCK WARNING SWITCH ASSEMBLY



(a) Remove the unlock warning switch.
(b) Measure the resistance of the switch.

Standard resistance

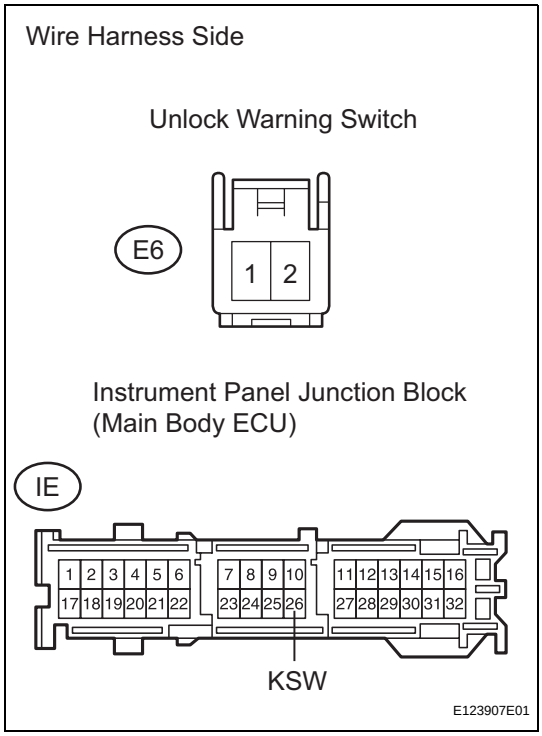
Tester Connection	Switch Condition	Specified Condition
1- 2	Not pushed	10 kΩ or higher
1- 2	Pushed	Below 1 Ω

NG → **REPLACE UNLOCK WARNING SWITCH ASSEMBLY**

OK

DL

6	CHECK WIRE HARNESS (SWITCH - ECU)



(a) Disconnect the E6 switch connector.
(b) Disconnect the IE junction block connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
E6-1 - Body ground	Below 1 Ω
E6-1 - IE26 (KSW)	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)